



# **TRT SOFTWARE STATUS and PLANS**

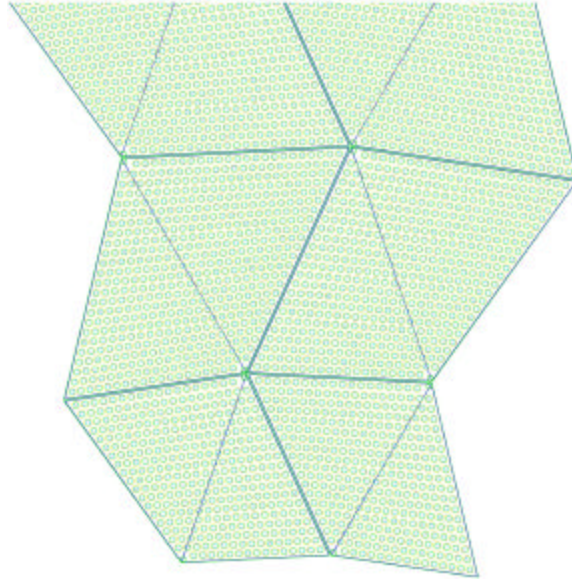
**US ATLAS Meeting at BNL  
July 22, 1999**

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- **GEANT3 Simulation**
- **Conversion to GEANT4**
- **Reconstruction**
- **Database**
- **US TRT SW People**



# GEANT3 WORK



- **Previous Work:**
  - ◆ Included TRT barrel modules
  - ◆ Careful tuning of material
  - ◆ Improved straw response and electronics model
  - ◆ A fair number of bug fixes
- **Some cleanup from Physics TDR and one request for an additional study remains.**



# GEANT4 PLANS

- **Start with test beam setup:**
  - ◆ Move previous test beam GEANT3 simulation into GEANT4 (first try by 9/1 test beam start).
  - ◆ Concentrate on confirming that  $dE/dx$  and transition radiation (TR) generation are correct in GEANT4.
- **If test beam simulation produces reasonable results:**
  - ◆ Make first attempt to move full ATLAS TRT geometry to GEANT4 by year's end
  - ◆ Hope for stable version of full TRT geometry some time next year.



# Reconstruction

- **Xkalman pattern recognition program uses TRT to initially find tracks.**
  - ◆ Fortran version used for fake rate and other studies for physics TDR.
  - ◆ Object Oriented version available for use.
- **TRT also used with IPATREC algorithm but not for initial track identification.**
- **The Fortran Xkalman is the only algorithm to work with the TRT barrel modules.**



# DATABASE

- Have had little time for work on TRT simulation database.
- Request made in December by RD Schaffer for base definitions of TRT geometry parameters for database at some future time.
- IU has a HPSS store into which ~5 TB of fixed target data is being stored. This experience should be useful for ATLAS.



# US TRT SW PEOPLE

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- A large portion of the past work and presumably the future responsibilities for TRT software is with the US.
- FL is:
  - ◆ TRT software coordinator
  - ◆ Inner detector simulation coordinator.
- People who have expressed interest in TRT software:
  - ◆ Keith Baker (Hampton)
  - ◆ Andrea Manara (IU)
  - ◆ V. Vassilakopoulos (Duke)